

## **HOLDER FOR NAME BADGES AND THE LIKE**

### **FIELD OF THE INVENTION**

**[0001]** The present invention relates generally to the field of plastic containers and particularly to thermoformed plastic holders formed from a single piece of plastic material and formed to display items for selection by a user.

### **BACKGROUND OF THE INVENTION**

**[0002]** Various holders have been used to hold items for display and selection by users. The holders may be utilized to present items such as name badges, business cards, credit cards, keys, licenses, envelopes, etc. which are to be organized and viewed for selection by a user. The items displayed in the holders generally are low cost and are commonly distributed to specific individuals over a short period of time at a single event such as a conference. Additionally, the holders may be used to store, to carry, and to protect the items while in transit to an event for which the items will be used, making it desirable that the holders have a cover. To facilitate selection of the desired item by an individual when the items are placed on display, however, the cover unnecessarily clutters the display area and requires an additional step for accessing the items displayed. As a result, the cover for such holders is typically not connected to the platform used for displaying the items. Instead, the platform and cover are made from two different processes, often from different materials, and later combined to make a single holder. Hard plastic, cardboard, or wood typically are the materials used to make the holders. As a result, the holders often are expensive, necessitating the

repeated use of the holder to make its use cost effective. Reuse of the holders is inconvenient, however, because the empty, often bulky holder must be returned to a storage place and stored until the next event requires its use. Thus, it would be desirable to be able to produce throw-away holders for the one time display of items.

### **SUMMARY OF THE INVENTION**

[0003] In accordance with the invention, a reclosable, thermoformed, hinged holder for name badges and similar articles has a cover and platform formed together from a single sheet of thin, flexible plastic material. A hinge integrally attaches the platform to the cover allowing the cover to be optionally placed to cover the items to be displayed. The plastic of the hinge may be thinned during the forming process to make it more flexible and thus easier to swing the cover into place over the platform. In a preferred construction, the hinge is scored to allow easy detachment of the cover from the platform when the platform is ready for use in displaying the items. The cover may subsequently be used to cover the items when necessary, but can be stored separately while the platform is in use for display purposes. Both the cover and platform separately or in combination can be nestably stacked to provide a compact product for shipment. Additionally, after the platform has been loaded with the items for display, the cover can be placed over the platform and multiple holders can then be stacked for easy shipment to the event. Because the holder can economically be disposed of after use, meeting planners can ship the holders with appropriate name badges held therein to the site of a meeting without having to arrange for return of the holder after the meeting is over.

[0004] In accordance with the invention, the platform has a generally horizontal top wall integrally formed with a support that extends downward from the top wall along the exterior peripheral edge of the top wall and has a flange integrally formed with the support that extends outward from the support at a depth below the top wall. Receptacles are formed in the top wall for the insertion and support of the items for display. Each receptacle is defined by a peripheral edge that defines a slot in the surface of the top wall with a width and a length sufficient to accommodate the desired item for display. A first receptacle wall extends downward from the top wall along one side of the peripheral edge of each receptacle to a depth less than or equal to the depth of the platform support. A second receptacle wall extends downward from the top wall along a second opposed side of the peripheral edge though the second receptacle wall may extend to a depth less than or equal to the depth of the first receptacle wall. A bottom wall then connects the first receptacle wall to the second receptacle wall and supports the item in an upright position when the item is inserted through the slot. The receptacles are formed in a manner which does not require disruption or modification of the normal thermoforming process sequence. The size, number, and orientation of the receptacles may vary depending on the item to be displayed and the shape of the platform. In a preferred construction for displaying rectangular name badges with conventional external dimensions of 10.6 centimeters by 7.8 centimeters, the platform is rectangular, and the receptacles are arranged in a series of rows and columns, for example, with two columns and twenty-five rows. In an exemplary embodiment, the rows are separated by approximately one centimeter and the columns are separated by approximately 0.6 centimeters. Each receptacle peripheral edge is rectangular in shape with

rounded corners and with a width of approximately 0.6 centimeters and length of approximately 11.4 centimeters. Each receptacle peripheral edge preferably has four protrusions to narrow the width of the receptacle, providing additional support for the name badges. The protrusions are arranged in pairs, preferably with the first pair one-quarter of the length from the right end of the peripheral edge and the second pair one-quarter of the length from the left end of the peripheral edge. The receptacle depth is approximately equal to the platform support depth (e.g., 1.4 centimeters).

[0005] In accordance with the invention, the cover has a ceiling and a cover support integrally formed with the ceiling and extending downward from the ceiling to form an opening with a cover interior peripheral edge generally matching the exterior peripheral edge of the top wall to allow the cover to fit over and to enclose the platform. The cover additionally has a cover flange integrally formed with the cover support and extending outward from the cover support whereby the cover flange attaches to the platform along a hinge, allowing the cover to be swung from an open position to a closed position about the hinge. The cover support has a depth sufficient to accommodate the height of the items to be displayed. In a preferred construction for the display of name badges, the cover support depth is approximately nine centimeters. In a preferred construction, the cover is formed with a reinforcement rib running the length of the ceiling along a centerline. The reinforcement rib is a rectangular notch depression formed in the ceiling. The reinforcement rib allows the use of a thinner, more flexible piece of thermoformed plastic while maintaining sufficient rigidity to allow stacking of the holders when the cover is in the closed position over the platform.

**[0006]** A particular advantage of the invention is that the cover and platform are formed together using a single sheet of thin, flexible thermoformed plastic. The thermoforming process is highly efficient and economical in contrast with more expensive processes for forming more rigid structures with, for example, hard plastic, wood, or cardboard. Following the thermoforming process, no other components need to be added to the holder. The holder is complete and functional using the single, normal thermoforming process sequence with no additional assembly. As a result, the holder can be manufactured quickly and inexpensively, allowing the holder to be cost-effectively thrown-away after a single use.

**[0007]** In the process for forming the platform and cover in accordance with the invention, a sheet of thermoplastic material is advanced over a thermoforming mold in conventional thermoforming equipment. Heat is then applied to the sheet material to heat it above its plastic transition temperature, and the softened plastic is then drawn by vacuum into the mold to conform the plastic material to the surfaces of the mold. The surfaces of the mold define the structure of the platform and cover including the receptacles for holding the items, the hinge which attaches the platform to the cover, and the reinforcement rib which reinforces the cover. After the sheet material has cooled and hardened, the shaped product defined by the surfaces of the mold is removed from the mold. Another sheet of material is then drawn into the mold. The process requires no change in the normal thermoforming processing steps and no significant additional processing time for the production of the formed plastic parts.

[0008] Further objects, features and advantages of the invention will be apparent from the following detailed description when taken in conjunction with the accompanying drawings.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

[0009] In the drawings:

[0010] FIG. 1 is a perspective view of a reclosable, detachable thermoformed hinged holder in accordance with the invention shown in its attached and open position.

[0011] FIG. 2 is a plan view of the platform portion of the holder.

[0012] FIG. 3 is a side view of a single receptacle portion of the holder showing the receptacle walls and the protrusions for supporting the item upright.

#### **DETAILED DESCRIPTION OF THE INVENTION**

[0013] With reference to FIG. 1, a reclosable, detachable thermoformed hinged holder in accordance with the invention is shown generally at 2 in its open, attached position. The holder 2 is formed from a single piece of thermoformed plastic material and is comprised of two sections: a platform 4 and a cover 6 which are hingedly and detachably attached along a hinge 8. The platform 4 and the cover 6 are thermoformed from a single sheet of thin, flexible thermoplastic material. In an exemplary embodiment, the holder displays items such as a name badge 10 in an upright position so that a user can easily find the appropriate item from among the other items displayed. The holder 2 will

be described below with reference to a generally rectangular geometry for both the platform 4 and the cover 6. It is understood, however, that the invention may take the form of various other geometrical shapes, e.g., square, polygon, circle, etc.

**[0014]** For exemplification, the rectangular shaped platform 4 has a top wall 12, a support 14, and a flange 16 that are integrally formed together from a single sheet of plastic. The top wall 12 is generally horizontal to the surface on which the platform 4 is placed and has a generally rectangular shape with rounded edges. The support 14 is integrally formed with the top wall 12 and descends in approximately a perpendicular direction from the top wall 12 to place the top wall 12 at a height above the surface on which the platform 4 is placed. The flange 16 extends outward in a generally perpendicular direction from the support 14 and has a generally rectangular shape with rounded edges creating an open interior below the top wall 12 defined by an interior peripheral edge 18. The height may vary depending on the size and the rigidity of the item that is to be displayed in the holder. An exemplary embodiment of the invention uses a height of approximately 1.4 centimeters that is sufficient to hold a plastic name badge in an upright position.

**[0015]** The top wall 12 includes a plurality of integrally formed receptacles 20 disposed below the top wall 12 in the open interior. In an exemplary embodiment, the receptacles are arranged in a series of rows and columns separated a distance sufficient to allow viewing of an item when the item is placed in the receptacle and held upright. The arrangement of the receptacles may vary based on the shape and size of the top wall 12 and the external dimensions of the item to be placed in

each receptacle. Referring to FIG. 2, each receptacle 20 is formed by making a peripheral edge 22 from which a first receptacle wall 24 descends from one side and a second receptacle wall 26 descends from a second, opposite side. The peripheral edge 22 thereby creates a slot 28 in the top wall 12 into which the item for display is inserted. Referring to FIG. 3, a bottom 30 joins the first receptacle wall 24 to the second receptacle wall 26 at the desired depth below the top wall 12. In the embodiment shown in FIG. 3, the bottom 30 is rounded and the first receptacle wall 24 and the second receptacle wall 26 descend in approximately a perpendicular direction from the top wall 12 to equal depths. In another embodiment, the depth of the first receptacle wall 24 may be different from the depth of the second receptacle wall 26. In another embodiment, the first receptacle wall 24 and the second receptacle wall 26 may descend in a perpendicular direction from the top wall 12 resulting in a bottom 30 that is nearly horizontal and joins first receptacle wall 24 and second receptacle wall 26 at right angles. In another embodiment, the bottom 30 could form the tip of a triangle that connects the first receptacle wall 24 to the second receptacle wall 26. In an exemplary embodiment, each receptacle 20 has a depth that is less than or equal to the height of the support 14 so that the platform 4 rests on the flange 16 rather than on the receptacle 20. In another embodiment, the platform is supported by the bottom 30 of each receptacle 20. In this embodiment, no support 14 or flange 16 is required.

[0016] In an exemplary embodiment, the peripheral edge 22 is generally rectangular in shape with rounded corners and has a width and length sufficient to allow insertion of the desired item into the created slot

28. In this exemplary embodiment, the first receptacle wall 24 and the second receptacle wall 26 are curved to follow the rounded corners of the peripheral edge 22 creating a completely enclosed receptacle. Without deviating from the function of the invention, the receptacle walls need not completely enclose the receptacle. Again without deviating from the function of the invention, the peripheral edge 22 could be formed to accommodate an item with a shape that is not essentially flat. Alternatively, a peripheral edge 22 in the shape of a semi-circle could be used to support a less rigid item.

[0017] In an exemplary embodiment, a protrusion 32 is integrally formed along the peripheral edge 22 to narrow the width of the slot 28 at that point providing additional support in holding the item upright. A second protrusion 34 is integrally formed on the opposite side of the slot 28 to further narrow the width of the slot 28 at that point along the length of the peripheral edge 22. This grouping forms a pair of opposed protrusions. Another pair of protrusions 36 and 38 may be similarly formed with the two pairs of protrusions equally offset from the center of the slot 28 in length. The protrusions 32, 34, 36, and 38 may have other shapes in addition to the rounded shape shown in FIG. 2 and FIG. 3. For example, the protrusions 32, 34, 36, and 38 may be triangular or rectangular. The number and spacing of the protrusions along the peripheral edge 22 may vary without deviating from the spirit of the invention.

[0018] The cover 6 has a ceiling 40, a cover support 42, and a cover flange 44. The cover support 42 is integrally formed with the ceiling 40 and descends downward from the ceiling 40. In an exemplary embodiment, the ceiling 40 is rectangular in shape with rounded corners

and the cover support 42 consists of a front cover wall 46, a right cover wall 48, a back cover wall 50, and a left cover wall 52 that extend downward from the ceiling 40 in an approximately perpendicular configuration relative to the ceiling 40. Together the front cover wall 46, the right cover wall 48, the back cover wall 50, and the left cover wall 52 create an opening with a cover interior peripheral edge 54 that generally conforms to that of the interior peripheral edge 18 of the flange 16. The cover 6 can then enclose the platform 4 and any items held by the platform allowing protection of the items and facilitating the stacking of multiple holders 2 when loaded. A cover with a different shape may use a different cover support 42 without deviating from the function of the invention. The cover flange 44 is integrally formed with the right cover wall 48 and extends outward horizontally from the right cover wall 48. The platform 4 is integrally formed with the cover 6 along a hinge 8 that joins one edge of the flange 16 to the cover flange 44. The cover 6 can then be swung from an open position to a closed position about the hinge 8. For purposes of rigidifying the cover 6, the cover flange 44 may additionally extend in a similar manner from the front cover wall 46, the back cover wall 50, and the left cover wall 52 to form a continuous rim of plastic material extending from the cover interior peripheral edge 54. The hinge 8, however, is only formed to join the flange 16 along one of the front cover wall 46, the right cover wall 48, the back cover wall 50, or the left cover wall 52 or along one edge of the cover support 42 in the case of a different embodiment. If the embodiment of platform 4 does not have a support 14 or a flange 16, as noted previously, the hinge 8 joins the top wall 4 along one edge. The cover 6 then encloses the top wall 4 thereby protecting the items displayed and allowing the stacking of

multiple holders 2. The cover interior peripheral edge 54 then generally conforms to the top wall peripheral edge 56.

**[0019]** In an exemplary embodiment, cut score lines may extend partially through the thickness of the hinge 8 to allow easy detachment of the platform 4 from the cover 6. This permits separate storage of the cover 6 when the platform 4 is in use for display purposes. For purposes of further rigidifying the cover 6, a reinforcement rib 58 may be integrally formed with the ceiling 40. The reinforcement rib 58 extends between either the front cover wall 46 and the back cover wall 50 or between the right cover wall 48 and the left cover wall 52. If a different shape is used for the cover support 42, the reinforcement rib 58 extends between any two opposed walls of the cover support 42. In an exemplary embodiment, the reinforcement rib 58 extends between the opposed pair of cover walls which are separated by the greatest distance. The reinforcement rib 58 is formed in the ceiling 40 by creating a notch that extends between the selected pair of walls along a center line of the ceiling 40. In an exemplary embodiment, the reinforcement rib is formed by extending two relatively shallow walls downward from the ceiling 40 in an approximately perpendicular direction from the plane of the ceiling 40 creating a rectangular shaped notch along the center line of the ceiling 40. The reinforcement rib 58 may be formed in additional shapes, e.g. v-shaped notch. Multiple reinforcement ribs 58 may be formed at various distances from the ceiling 40 midpoint without deviating from the function of the invention.

**[0020]** The platform 4 may have various design features that are conventional in thermoformed containers including a support 14 that slopes inward from the flange 16 to the top wall 12 to facilitate removal

of the formed part from the mold and nestable stacking of the platforms. The cover support 42 may slope inward from the cover flange 44 to the ceiling 40 to facilitate removal of the formed part from the mold and nestable stacking of the covers. Similarly, the front cover wall 46, the right cover wall 48, the back cover wall 50, and the left cover wall 52 may slope inward from the cover flange 44 to the ceiling 40 to facilitate removal of the formed part from the mold and nestable stacking of the covers.

**[0021]** It is understood that the invention is not confined to the particular embodiments set forth herein as illustrative, but embraces all such forms thereof as come within the scope of the following claims: